Red Sea, from which it is separated by a low range of hills. The gentle rains at one part of the year supply sufficient moisture to heat the iron pyrites scattered over the surface of Arrho to a mild glow; the substance is decomposed, lixiviated, and brought into combination with several combustible matters, and eruptions like those of volcanoes take place; slime cones are formed from four to twelve feet in height, from which, as from pipes, issue steam and flame. These generally ephemeral formations consist of mud which is mixed with sulphur and salt, and in the dried cones may be found almost pure sublimated sulphur. The general appearance of the place is like that of pulp boiling in a huge, angular, zig-zag cauldron. The phenomenon continues till increased rains lay the ground under water, after disappearance of which at the end of the rain periods, a hard salt crust, several inches thick, covers the ground.—The trachytes of the island of Cos are described by Dr. Dölter; Dr. Stache gives an account of the eruptive rocks in the Ortler region and the mountain group of the Zwölfer-Spitz in Upper Vintschgau; and Dr. Hörnes, of observations in the district where the Rienz takes its rise.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, Nov. 25.—On the production of Glycosuria by the effect of oxygenated blood on the liver, by F. W. Pavy, M.D., F.R.S.

The conclusions arrived at are that the amyloid substance found in the liver is a body which tends to accumulate in certain animal structures under the existence of a limited supply of oxygen, and that it is through the liver exceptionally receiving the supply of venous blood it does, that the special condition belonging to it is attributable. It is also shown that the undue transmission of oxygenated blood to that organ at once induces an altered state, which is rendered evident by the production of glycosuria.

On the Structure and Relations of the Alcyonarian *Heliopora cœrulea*, with some account of the anatomy of a species of *Sarcophyton*; notes on the structure of species of the genera *Millepora*, *Pocillopora*, and *Stylaster*, and remarks on the affinities of certain Palæozoic Corals, by H. M. Mozeley, Naturalist on the *Challenger* Expedition.

The title of this paper indicates the nature of its contents. The author has not been able to decide whether *Millepora* is one of the actinozoa or belongs to the hydrozoa as stated by Prof. Agassiz. *Heliopora* is undoubtedly alcyonarian.

Mathematical Society, Dec. 9.—Prof. H. J. S. Smith, F.R.S., president, in the chair.—Major J. R. Campbell and Prof. G. M. Minchin were elected members.—Prof. Clifford read a paper on the transformation of elliptic functions, in which he attempted to apply Jacobi's geometrical representation of the addition-theorem in elliptic functions to the theory of their transformation.—Prof. Cayley spoke on a system of algebraical equations connected with Malfatti's problem. The communication was an extension of a paper by the same gentleman in the *Cambridge and Dublin Mathematical Journal*, tom. iv., 1849, pp. 270–275.—The chairman next communicated three short notes: 1. On a problem of Eisenstein's. If p is an uneven prime, the function $4\,\frac{x^p - 1}{x - 1} = Z$ can always be expressed in the form $Y^2 - (-1)^{\frac{1}{2}(p-1)} p X^2$, where X and Y are rational and integral functions of x, having integral coefficients. This is a theorem of Gauss. Eisenstein's problem (*Crelle's Journal*, vol. xxvii. p. 83) is "to determine the cases in which the equation $Z = Y^2 - (-1)^{\frac{1}{2}(p-1)} p X^2$ admits of a multiplicity of solutions, and to ascertain the law connecting the various solutions, when there is more than one." The solution of this problem is as follows:—If $[T, U]$ is *any* solution whatever in integral numbers of the equation $T^2 - (-1)^{\frac{1}{2}(p-1)} p U^2 = 4$, and $[X, Y]$ is any one given solution of Gauss's equation, then all the solutions of Gauss's equation are comprised in the formula—

$$\left[\tfrac{1}{2}\left(TX + (-1)^{\frac{p-1}{2}} p UV\right), \tfrac{1}{2}(UX + TY)\right].$$

Thus if $p = 4n + 3$ the equation admits of but one solution (the four solutions $[\pm X, \pm Y]$ being regarded as but one) except in the case $p = 3$, when it admits of three; if $p = 4n + 1$, the equation admits of an infinite number of solutions. That the functions $[\frac{1}{2}(TX + pUY), \frac{1}{2}(UX + TY)]$ are all of them solutions of Gauss's equation is evident; the proof that this formula comprises all the solutions of the equations is less elementary, because it depends on the irreducibility of the function Z. There exists a general theory of the representation of rational and integral functions of x by quadratic forms; such representation being, of course, only possible when the given function of x is capable of resolution into two factors by the adjunction of a quadratic surd.—2. On the joint invariants of two conics, or two quadrics. Let P and Q be two conics, and let 1 2 3 be any triangle self-conjugate with regard to P. Let also P_1, P_2, P_3, be the rectangles of the points 1, 2, 3, with regard to the conic P, these rectangles being taken upon transversals measured in any fixed direction; and let Q_1, Q_2, Q_3, have similar meanings with regard to the conic Q, the direction of the transversals being also fixed. Then the expression $\frac{Q_1}{P_1} + \frac{Q_2}{P_2} + \frac{Q_3}{P_3}$ has the same value for all self-conjugate triangles of P; and is, in fact, that invariant of P, Q, which is linear with regard to Q, and quadratic with regard to P, and the evanescence of which expresses that Q harmonically circumscribes P. The corresponding theorem in the geometry of the straight line is: "If Q_1, Q_2, P_1, P_2, are two pairs of fixed points on a line, and if A_1, A_2, is any pair of harmonic conjugates of $P_1\,P_2$, the value of the expression

$$\frac{A_1 Q_1 \cdot A_1 Q_2}{A_1 P_1 \cdot A_1 P_2} + \frac{A_2 Q_1 \cdot A_2 Q_2}{A_2 P_1 \cdot A_2 P_2}$$

is independent of the particular pair $A_1\,A_2$ considered." From this theorem, the result given above for two conics follows immediately; from it the corresponding property for two quadrics may be inferred, viz.:

$$\frac{Q_1}{P_1} + \frac{Q_2}{P_2} + \frac{Q_3}{P_3} + \frac{Q_4}{P_4} = \text{constant};$$

and so on for quadratic functions containing any number of indeterminates. 3. On the equation $P \times D =$ constant, of the geodesic lines of an ellipsoid. From this equation (in which P is the perpendicular from the centre upon the tangent plane at any point of the geodesic, and D is the semi-diameter parallel to the tangent line of the geodesic) it is convenient to be able to infer directly the principal properties of the geodesic line, without having first to transform the equation into M. Liouville's form, $\mu^2 \cos^2 i + \nu^2 \sin^2 i = a^2$. In Dr. Salmon's "Geometry of Three Dimensions," the theorem of the constancy of the sum or difference of the geodesic radii vectores, drawn from any point of a line of curvature to two umbilics, is thus demonstrated. And it is worth while to add (though it is very improbable that the point has not been noticed before) that a proof of the theorem that two geodesic tangents of a line of curvature which intersect at right angles, intersect on a sphero-conic, may similarly be obtained without transforming the equation. Let Q be the point where the two geodesic tangents intersect at right angles, O the centre of the ellipsoid; let $c = OQ$, and let a, b be the semi-axes of the central section parallel to the tangent plane at Q. The two geodesics make angles of 45° with the lines of curvature at Q: hence, for either of these geodesic lines, $D^2 = \frac{2a^2 b^2}{a^2 + b^2}$. Let Q' be a second point where two geodesic tangents to the same line of curvature intersect at right angles; then $\frac{2P^2 a^2 b^2}{a^2 + b^2} = \frac{2P'^2 a'^2 b'^2}{a'^2 + b'^2}$, because $P \times D$ has the same value for all geodesic lines touching the same line of curvature. But $P^2 a^2 b^2 = P'^2 a'^2 b'^2$, because parallelepipeds circumscribing an ellipsoid with their faces parallel to conjugate diametral planes are equal. Hence $a^2 + b^2 = a'^2 + b'^2$. But also $a^2 + b^2 + c^2 = a'^2 + b'^2 + c'^2 \therefore c = c'$, and Q and Q' lie in the same sphero-conic. Mr. Tucker (in the absence of the author) brought before the Society a paper by Mr. H. W. Lloyd Tanner on the solution of certain partial differential equations of the second order, having more than two independent variables. The equations considered are included in the form—

$$\sum_{i=1}^{i=n} \sum_{j=1}^{j=n} V_{ij} \frac{d^2 z}{dx_i dx_j} + V_o = 0 \quad . \quad . \quad . \quad (1)$$

where $V_{ij} V_o$ are functions of

$$x_1 \ldots x_n,\ z,\ p_1\left(\equiv \frac{dz}{dx_1}\right) \ldots p_n\left(\equiv \frac{dz}{dx_n}\right),$$

and it is proposed to investigate the conditions that (1) should be soluble in terms of arbitrary functions, the arguments of which are definite functions of $z, x_1 \ldots x_n$; and when these conditions are satisfied to determine the solution. Three cases arise for discussion: (1) $n - 1$ of the arguments independent, (2) n of them independent, (3) $n + 1$ of them independent. The paper concludes with a note on the application of a similar method to equations of an order higher than the second.

Zoological Society, Dec. 7.—Mr. George Busk, F.R.S., V.P., in the Chair.—Mr. Sclater read an extract from a letter addressed to him by Mr. H. A. Wickham, on the occurrence of the large blue Hyacinth Macaw, (*Ara hyacinthina*) near Santarem, on the river Amazons.—Mr. Sclater exhibited and made remarks on a Skin of *Hypocolius ampelinus.*, Bp, obtained by Mr. W. T. Blanford, in Upper Scinde, to the west of Shikaprur. —Prof. Owen, C.B., read the twenty-second part of his series of Memoirs on Dinornis. This part contained a restoration of the skeleton of *Dinornis maximus.*—Mr. J. W. Clark read a paper on the Eared Seals of the islands of St. Paul and Amsterdam, to which he added a description of the Fur Seal of New Zealand from specimens kindly furnished by Dr. Hector. Mr. Clark further read copious extracts from the narratives of the older Explorers in these seas, and attempted to reconcile the notices given by them with the subsequent description of Naturalists.—A communication was read from the Rev. R. Boog Watson, on the generic peculiarities of the distinctively Madeiran Achatinas of Lowe.—A communication was read from Dr. Hermann Burmeister, Director of the National Museum, Buenos Ayres, containing the description of a new species of *Dolichotis*—which Dr. Burmeister proposed to call *Dolichotis salinicola.*—Mr. W. T. Blanford communicated particulars respecting some large Stags' Horns, obtained by the Expedition to Western Turkestan to which the late Dr. Stoliczka was attached as Naturalist, said to have been brought originally from the Thian Shan Mountains. These horns were of very large size, each measuring 51 inches in length round the curve. Mr. Blanford, considering that these horns clearly showed the existence of a species hitherto undescribed, gave a full description of them, and proposed to give the name of *Cervus eustephanus* to the animal to which they belong.—Dr. O. Finsch communicated some notes on *Phœnicomanes iora*, Sharp, and *Abrornis atricapilla*, Blyth, and pointed out that the first named bird is identical with *Iora lafresnayei* of Malacca, while *Abrornis atricapilla*, said to be from China, is in fact a *Myiodioctes pusillus*, Wils., a well known North American bird.—A second communication from Dr. Finsch contained the description of a bird from the Arfak Mountains, New Guinea, which appears to form a new genus and species. This Dr. Finsch proposed to call *Pristornamphus versteri.*—A third communication from Dr. Finsch gave the characters of six new Polynesian birds in the Museum Godeffroy at Hamburg.—A communication from Mr. J. Caldwell, contained some notes on the Zoology of the Island of Rodriguez.—Dr. E. Von Martens communicated a list of the Land and Fresh Water Shells collected by Mr. Osbert Salvin in Guatemala in 1873-74.

Geological Society, Dec. 1.—Mr. John Evans, V.P.R.S., president, in the chair.—M. Rodolfo de Arteaga, William Henry Barnard, the Rev. J. Clifford, M.A., Lieut.-Gen. Robert Fitzgerald Copland-Crawford, R.A., Walter Derham, B.A., James Duigan, George R. Godson, the Rev. Algernon Sydney Grenfell, Sir David Salomons, Bart., Aubrey Strahan, B.A., William Thomas, Edward Wethered, F.C.S., the Rev. Burgess Wilkinson, and Edward Alfred Wünsch were elected Fellows of the Society. The following communication was read:—On the granitic, granitoid, and associated metamorphic rocks of the lake-district.—Parts III., IV., and V., by Mr. J. Clifton Ward, of the Geological Survey of England and Wales. Part III. On the skiddaw granite and its associated metamorphic rocks. The subject was treated under the three heads of (1) Examination in the field, (2) Microscopical examination, (3) Chemical examination, and the following were the general results arrived at. The metamorphism of the skiddaw slate extends for many miles around the several granitic masses, and commences by the formation of small spots which become developed into chiastolite crystals. The chiastolite *slate* passes into spotted *schist*, by the great increase of the small oblong spots arranged along planes of foliation, and mica appears. The spotted schist graduates into mica-schist, which, however, often retains to the last faint spots, and occasionally chiastolite crystals. The junction between the mica-schist and the granite is generally rather abrupt. On the whole, chemical and field evidence especially are *against* regarding the granite, now exposed, as the result of the extreme metamorphism of the skiddaw slates *immediately* around it; but whether it may not have resulted from the metamorphism of underlying parts of the same series is an open question. The great contortion of the mica schist around the granitic centres may be in part due to the, at any rate, *partially* intrusive character of the granite. In an appendix abstracts of papers by various authors who have written in connection with the subject were given.—Part IV. On the quartz felsite, syenitic, and associated metamorphic rocks of the lake district. This part was treated under the same three heads of field, microscopical, and chemical evidence as the last. The quartz felsite of St. John's Vale, and the syenitic granite of Buttermere and Ennerdale, lie for the most part at the junction of the volcanic and skiddaw series, and seem by their line of strike, and by the occasional presence of bands of slate or volcanic rock enclosed within or running through them, to represent the transition beds between the two series, metamorphosed in great measure *in situ*. Both microscopic and chemical evidence demonstrate the possibility of this process. Evidence gathered in the field, and microscopic and chemical examination, all seem to suggest that the rocks of Carrock Fell, &c., represent the base of the volcanic series, consisting largely of contemporaneous traps, thrown into a synclinal, the axis of which ranges generally east and west, and metamorphosed into rocks of greatly varying character, such as sphærolitic felsite, hypersthenite, and diorite. Although all the various masses treated of were probably formed in the main by the metamorphism of beds *in situ*, it is probable that some parts of the resulting magma became occasionally intrusive among and absorptive of higher beds. In an appendix notices of papers on these rocks by other authors were given.—Part V. General summary. In this part the leading results of the four preceding divisions of this memoir were briefly brought forward, followed by the discussion of various considerations relating to metamorphism, under the following heads:—1. Granite at various depths; 2. How far granite may be an ultimate universal product of metamorphism; 3. Distribution of metamorphism (selective metamorphism); 4. Classes of metamorphism. The paper was illustrated by a large geological map of the northern part of the Lake district, by a geological model of the Keswick district, by rock specimens, and large coloured photographs taken from water-colour microscopic drawings made by the author.

Physical Society, Dec. 11.—Prof. Gladstone, F.R.S., president, in the chair.—The following candidates were elected members of the Society:—C. Higgins and S. O. Thompson, B.A., B.Sc.—In the absence of Prof. G. C. Foster, Mr. Lodge exhibited and described a simple form of chronoscope for measuring short intervals of time, which Prof. Foster has recently devised. In experiments commenced about eight years ago the apparatus consisted essentially of three parts: 1. An arrangement for releasing the bullet or other body whose fall was to be timed, when the apparatus is employed for such determinations; 2. An arrangement for directing a gauged stream of water into a vessel during the time occupied by the fall of the body; and 3. A platform to receive the falling body. The stream of water was directed into the vessel by means of a bent funnel brought under a constantly flowing stream by an electro-magnet. But this apparatus had two serious defects, one of which was caused by the difficulty of accurately gauging the stream, and the other by the inertia and consequent sluggishness of movement of the funnel. The arrangements, however, for dropping and receiving the bullet being satisfactory, were finally adopted. The former is simply a clip one side of which is a spring, and this forms the armature of a small electro-magnet. On completing the circuit the spring is drawn aside and the bullet released, momentarily breaking a current which passes through it, as subsequently described. The bullet, at the end of its fall, strikes a small mahogany table, so arranged that the blow slightly depresses it, and permanently breaks the same current, which in the interval has been closed by a subsidiary wire. The author abandoned the method of indicating the commencement and end of the fall by an independent electro-magnet and, substituting the trace made on blackened paper by a vibrating tuning-fork for the stream of water, he registered them by perforations made by induction-coil sparks in the blackened paper, a method suggested by the description of Beetz chronoscope. The apparatus is difficult to describe without the aid of diagrams, but the following will perhaps sufficiently indicate the general arrangement. The two terminals of the secondary coil are connected, the one with the tuning-fork, and the other with the metallic drum on which the blackened paper is carried. The other connections are as follows:—The current passes from one pole of battery to spring of releasing apparatus (which is also connected with one terminal of a separate condenser), thence through the bullet to the fixed portion of the clip, and by a wire to the lower table, which is also in electrical connection with the face of the electro-magnet which releases the bullet, in order that the current may be completed immediately the falling body is released. From this table the current passes through an adjusting screw to one terminal of the primary wire of the induction coil which is connected with the other condenser terminal. The other pole of the battery is connected with the primary. The spark in each case is caused by the breaking of the current which takes place when the bullet is released and when it strikes the table, the perforations in the black paper of course being made in the trace produced by the tuning-fork. It is hardly necessary to mention that the releasing electro-magnet is worked by one or two independent cells. The author considers that with a fork making sixty-four complete vibrations in a second the error, in determining an interval of not more than two or three seconds, should not exceed $\frac{1}{500}$th of a second, and that with a more rapidly vibrating fork probably much greater accuracy might be attained. Mr. Lodge made four experiments before the Society with falls of 2 ft. and 1 ft., from which the value of gravity was found to be 32·21. Prof. Guthrie inquired whether the instrument was sensitive to the influence of temperature on the time of vibration of the tuning-fork. Mr. Ladd suggested that the pressure of the marker on the end of the tuning-fork might hinder its vibration, and referred to difficulties which Capt. Noble had met with in the working of his chronograph. Mr. Lodge stated that experiments had only been made in a laboratory having a fairly equable temperature, and that therefore the effect of considerable changes of temperature had not been ascertained. He considered that the slight resistance referred to by Mr. Ladd would rather tend to diminish the amplitude of vibrations than to change their number per second.—Prof. McLeod then described and exhibited an arrangement for ensuring that the charge given to a Leyden jar shall not exceed any fixed limit. Through a cork in the upper end of a bell-glass passes a brass rod, insulated through its entire length by means of a glass tube, through which it passes freely. To the upper end is attached a brass knob, and the lower end is pointed and provided with a screw-thread, so that it can be set at any distance within, or through, a hollow brass ball, perforated below and rigidly fixed to the glass tube. Within the bell-glass is a loose cage of perforated sheet zinc and a vessel containing strong sulphuric acid. The whole stands on a metallic plate to secure a good earth connection. The action is as follows:—If the rod be screwed down so that the point projects through the hollow ball, the upper knob and lower metallic plate being connected with the two poles of a Holtz machine, only short sparks can be obtained, because a large amount of electricity escapes at the point; but if the rod be raised so that the rod barely enters the hollow ball, at the top, no escape takes place from it, and the machine will give its full length of spark. By varying the position between these two extreme limits, any required length of spark or amount of charge for an interposed Leyden jar can be obtained.

Entomological Society, Dec. 1.—Sir Sidney Smith Saunders, C.M.G., president, in the chair.—Mr. W. A. Forbes exhibited a variety of the Burnet Moth (*Zygæna filipendulæ*), with yellow spots, of which he had bred a number from larvæ taken near Winchester.—Mr. Champion exhibited some rare British Coleoptera.—Mr. William Cole exhibited carefully-executed drawings of the pupæ of a species of the Dipterous genus *Ephydra*, which he had taken clinging to the stems of grass, in brackish water, near Southend, Essex.—The President referred to the numerous parasites found on bees of the genus *Osmia*, and remarked that M. Jules Lichtenstein had recently obtained *Zonitis præusta* from the cells of *Osmia tridentata*; and likewise *Euchalus vetusta*, Duf., from its desiccated adult larvæ, in the same way that *Halticella osmicida* effects its metamorphosis, thus making the thirteenth parasite recorded as infesting this particular species of bee.—A paper was communicated by Dr. Burmeister, of Buenos Ayres, giving a description of a new genus belonging to the family *Scaritidæ* (nearly allied to *Clivina*), taken on the shore of the river Uruguay, near the town of Concordia.

PARIS

Academy of Sciences, Dec. 6.—M. Frémy in the chair.—On the constitution of phosphates, by MM. Berthelot and Louguinine.—Atmospheric perturbations of the hot season of 1875, by M. Belgrand.—On the colouring matter of fruits of Mahonia, and the characters of the wine these fruits give by fermentation, by M. Is. Pierre.—On the astronomical phenomena observed in 1597 by the Dutch in Novaya Zemlya, by M. Baills.—Note on the double touch process of magnetisation, by M. Gaugain.—On the temperature of elevated layers of the atmosphere, by M. Mendeleeff. The temperatures observed there are constantly higher than those calculated; this is accounted for by aqueous vapour.—On the transparence of flames and of the atmosphere, and on the visibility of scintillating lights, by M. Allard. From experiment he adopts 0·81 as mean value of the coefficient of transparence of flame, referred to the centimetre of thickness traversed. The absolute intensity of flame increases more rapidly than the weight of oil consumed, but the amount of light absorbed in passage of rays through the flame increases still more rapidly.—On the distribution of magnetism in circular or elliptical steel plates, by M. Duter.—On some properties of gallium, by M. Lecoq de Boisbaudran. This is noticed fully elsewhere.—Note on a derivative by hydratation of cellulose, by M. Aimé Gerard.—Researches on the constitution of albuminoid matters, by M. Schutzenberger.—On the development of the fruit of *Chaetomium*, and the supposed sexuality of Ascomycetes, by M. van Tieghem.—On new fossil pieces discovered in the phosphorites of Quercy, by M. Gaudry.—On the virulent state of blood of healthy horses, killed by falling or asphyxia, by M Signol. The blood taken from the body after sixteen hours proves rapidly fatal to goats or sheep inoculated with it (twenty-four drops). Motionless bacteridia are present, but there is no sign of putridity.—Discovery of the 157th small planet at Marseilles on Dec. 1. Ephemerides and observations of planets lately discovered, by M. Stephan.—Observations of planets (152) and (154) made at the Paris Observatory, by M. Prosper Henry.—On the isochronism of the spirals of chronometers, by M. Caspari.—Note on the distribution of magnetism in the interior of magnets, by MM. Trève and Durassier.—On the fermentation of fruits, by MM. Lechartier and Bellamy.—On panification in the United States, and the properties of hops as ferment, by M. Sacc..—On the presence, in present seas, of a type of Sarcodaria of the secondary strata, by M. Fischer.—On larval forms of Bryozoa, by M. Barrois.—On the organisation of Acarians of the family of Gamasides; characters showing that they form a natural transition between hexapodan insects and Arachnida, by M. Megnin.—Nidification of the rainbow fish of India, by M. Carbonnier.—On the ferns and Lycopodiaceæ of the islands St. Paul and Amsterdam, by M. Fournier.—On the influence of stripping off the leaves of beet on production of sugar, by M. Corenwinder.

BOOKS AND PAMPHLETS RECEIVED

BRITISH.—The Native Races of the Pacific States of North America. Vol. iv.: Hubert Howe Bancroft (Longmans).—The Movements and Habits of Climbing Plants: Charles Darwin, M.A., F.R.S (Murray).—Medicinal Plants. Part 2: R. Bentley, F.L.S., and H. Trimen, M.B., F.L.S. (Churchill).—Milk in Health and Disease: A. Hutchinson Smee (Newman).—Magnetism and Electricity: F. Guthrie (Wm. Collins, Sons and Co.)—Hermann's Human Physiology. Translated by A. Gamgee, M.D., F.R.S. (Smith and Elder).—Pyrology, or Fire Chemistry: Wm. A. Ross (Spon).—Timber and Timber Trees: Thomas Laslett (Macmillan).—Discoveries and Inventions of the Nineteenth Century: R. Routledge, B.Sc., F.C.S. (Routledge).

CONTENTS

PAGE
HAECKEL'S HISTORY OF CREATION. By P. H. P. S. 121
BURTON'S GORILLA LAND AND THE CONGO (*With Illustrations*) . . 123
THE GERMAN NORTH SEA COMMISSION. By E. P. W. 125
OUR BOOK SHELF:—
  "The Origin of the Sun's Heat and the Chemical Constitution of the Matter of his System" 126
LETTERS TO THE EDITOR:—
  Theophrastus *versus* Millington.—A. B. C. 127
  Estimation of Fractions.—W. M. FLINDERS PETRIE 127
  The Late Dr. von Willemoes-Suhm.—J. C. G. 129
  Seasonal Order of Colour in Flowers.—C. E. HERON ROGERS . . 129
OUR ASTRONOMICAL COLUMN:—
  Atlas Pleiadum, Σ 453 129
  The "Gegenschein" of the Zodiacal Light 129
  The Comet of 1729 129
RUTIMEYER ON TRACES OF MAN RECENTLY DISCOVERED IN THE INTER-GLACIAL COAL-BEDS OF SWITZERLAND. By J. L. 130
THE THEORY OF "STREAM LINES" IN RELATION TO THE RESISTANCE OF SHIPS, III. By WM FROUDE, F.R.S. (*With Illustrations*). . 130
THE CHANNEL TUNNEL—SUBMARINE EXPLORATIONS. By W. TOPLEY 133
NOTES 134
ON SOME PROPERTIES OF GALLIUM 136
SCIENTIFIC SERIALS 137
SOCIETIES AND ACADEMIES 138
BOOKS AND PAMPHLETS RECEIVED 140